IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Eun-Hwa HONG et al.

Application No.: 09/842,714

Filed: April 27, 2001

For: METHOD OF SYNTHESIZING

CARBON NANOTUBES AND

APPARATUS USED FOR THE SAME

Group Art Unit: 1754

Examiner: Unassigned

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents Washington, D.C. 20231

Sir:

Kindly preliminarily amend the application, as follows:

IN THE ABSTRACT:

Please add the abstract appearing on the attached separate sheet.

IN THE CLAIMS:

Please add Claims 17-23, as follows:

- --17. The apparatus of claim 16, further comprising a heat-resistant material provided inside or outside the reactor, the heat-resistant material blocking heat transmission from reactor to the outside.
- 18. The apparatus of claim 16, further comprising a catalyst gas supplier for supplying the catalyst into the reactor in gas phase.
 - 19. The apparatus of claim 18, wherein the catalyst gas supplier comprises: a saturator for vaporizing a compound which is a precursor of the catalyst;

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a water bath for accommodating the saturator; and

a circulator connected to the water bath.

- 20. The apparatus of claim 16, wherein the local heater comprises:
- a microwave generator for generating microwaves; and
- a microwave guide connected to the reactor, the microwave guide guiding the microwaves to the reactor.
 - 21. The apparatus of claim 16, wherein the local heater comprises:
 - a high-frequency coil installed around the reactor; and
 - a power supply for applying high-frequency current to the high-frequency coil.
- 22. The apparatus of claim 16, wherein the local heater comprises a radio frequency generator installed near the reactor.
 - 23. The apparatus of claim 16, wherein the local heater comprises:
 - a laser beam generator installed near the reactor; and
 - a lens for focusing laser beams generated by the laser beam generator.--

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REMARKS

Claims 1-23 are pending in the application. Claims 17-23 have been added to round out the scope of protection being sought. Applicants respectfully request consideration of the new claims 17-23.

Respectfully submitted,

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Date: June 29, 2001

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ATTACHMENT TO PRELIMINARY AMENDMENT

Abstract of the Disclosure

A method of synthesizing carbon nanotubes and a carbon nanotube synthesizing apparatus used for the same are provided. A catalyst is introduced into the reactor, and the catalyst in the reactor is selectively and locally heated by a heating method such as microwave irradiation, electromagnetic inductive heating, radio frequency heating or laser heating. Here, carbon source gas, carbon source gas and hydrogen sulfide gas, or carbon source gas and hydrogen gas or inert gas is supplied into the reactor, thereby growing carbon nanotubes from the locally heated catalyst.

